

**BY ORDER OF THE COMMANDER  
AIR MOBILITY COMMAND**

**AIR MOBILITY COMMAND  
PAMPHLET 10-260**



**26 SEPTEMBER 2012**

***Operations***

***CIVIL RESERVE AIR FLEET (CRAF)  
AIRCREW CHEMICAL-BIOLOGICAL (CB)  
WARFARE DEFENSE PROCEDURES***

---

**ACCESSIBILITY:** Publications and forms are available for downloading or ordering on the e-Publishing website at [www.e-Publishing.af.mil](http://www.e-Publishing.af.mil).

**RELEASABILITY:** There are no releasability restrictions on this publication.

---

OPR: HQ AMC/A3BC

Certified by: HQ AMC/A3B (Mr. Lyman)

Supersedes: AMCPAM10-260,  
9 December 2009

Pages: 27

---

This instruction implements Air Force Policy Directive (AFPD) 10-2, *Readiness*, AFPD 10-26, *Counter-Chemical, Biological, Radiological and Nuclear Operations*, and interfaces with AFMAN 10-2503, *Operations In A Chemical, Biological, Radiological, Nuclear, And High-Yield Explosive (CBRNE) Environment*. This pamphlet provides Chemical, Biological, Radiological, Nuclear, and High Yields Explosive (CBRNE) defense instructions for Civil Reserve Air Fleet (CRAF) aircrews that could operate in a CBRNE threat area. All CRAF carriers shall maintain a current copy of this pamphlet. This instruction does not apply to Air National Guard or Air Force Reserve units. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s to: HQ AMC/A3B – DOD Commercial Airlift Division, 402 Scott Dr., Unit 3A1, Scott AFB, IL 62225-5302 or electronically to: [AMC.A3BC.CIVIL.RESERVE.AIR.FLEET.BRANCH@us.af.mil](mailto:AMC.A3BC.CIVIL.RESERVE.AIR.FLEET.BRANCH@us.af.mil). When new/additional information is received, it will be provided as a change to this publication. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, management of Records, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afrims/afrims/afrims/rims.cfm>. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

## ***SUMMARY OF CHANGES***

This document has been substantially revised and should be reviewed in its entirety. It consolidates individual protective techniques and procedures from related DOD and Air Force publications for CRAF aircrews. This revised pamphlet incorporates the latest Individual Protective Equipment available to the Air Force and removes references to obsolete garments.

<b>Chapter 1—GENERAL INFORMATION</b>	<b>4</b>
1.1. Introduction. ....	4
1.2. Policy. ....	4
1.3. Responsibilities. ....	4
<b>Chapter 2—CONCEPT OF OPERATIONS</b>	<b>6</b>
2.1. Equipment Issue. ....	6
Table 2.1. CRAF IPE BOI. ....	6
2.2. Just-in-Time Training. ....	6
2.3. Equipment Return. ....	7
2.4. Attack Warning Signals. ....	7
Figure 2.1. Air Force Visual Aid 10-2511, USAF Standard Attack Signals For CBRNE Medium And High Threat Areas ....	7
2.5. Mission-Oriented Protective Posture (MOPP). ....	8
Figure 2.2. AFVA 10-2512 ....	9
<b>Chapter 3—COMPONENTS OF THE INDIVIDUAL PROTECTIVE EQUIPMENT</b>	<b>11</b>
3.1. General. ....	11
3.2. Protective Mask ....	11
Figure 3.1. MCU-2A/P Protective Mask. ....	11
Figure 3.2. MCU-2A/P Mask Prepared for Storage. ....	12
Figure 3.3. MCU-2A/P Mask Stored. ....	12
Figure 3.4. Joint Service General Protective Mask (JSGPM) or M50. ....	13
Figure 3.5. JSGPM Break Down. ....	14
Figure 3.6. Mask Donning Preparation Procedures. ....	14
Figure 3.7. Airtight Seal. ....	16
3.3. Overgarments. ....	16
Figure 3.8. JSLIST. ....	17
3.4. Overboots are made of butyl rubber and vinyl plastic, which are impermeable to liquid, vapor, and dusty agents. ....	18

3.5.	Protective Gloves are a two-piece hand protection system consisting of rubber gloves for chemical protection and separate inner cotton liners for perspiration absorption. ....	18
3.6.	Personal Decontamination Kit - M-291. ....	18
Figure 3.9.	Personal Decontamination Kit - M-291. ....	19
3.7.	Nerve Agent Antidotes. ....	19
Figure 3.10.	provides detailed instructions on the proper use of the MK1 kit. ....	20
Figure 3.10.	MK1 Nerve Agent Antidote Kit. ....	20
<b>Chapter 4—EQUIPMENT SIZING</b>		<b>21</b>
4.1.	General. ....	21
4.2.	Protective Mask MCU 2A/P and JSGPM/M-50. ....	21
Figure 4.1.	MCU 2A/P and JSGPM/M-50 Mask Sizing. ....	21
4.3.	JSLIST. ....	21
Table 4.1.	JSLIST Coat Sizing. ....	22
Table 4.2.	JSLIST Trouser Sizing. ....	23
4.4.	Overboots. ....	23
Table 4.3.	Overboot Sizing. ....	24
4.5.	Protective Gloves. ....	24
<b>Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION</b>		<b>25</b>

## Chapter 1

### GENERAL INFORMATION

**1.1. Introduction.** This document describes Air Mobility Command's (AMC) responsibilities for planning, organizing, training, and equipping Civil Reserve Air Fleet (CRAF) aircrews that could operate in a Chemical, Biological, Radiological, Nuclear, and High Yields Explosive (CBRNE) threat area. This instruction implements the policies outlined in AFMAN 10-2503, *Operations In A Chemical, Biological, Radiological, Nuclear, And High-Yield Explosive (CBRNE) Environment*, and AMC Concept of Operations, *Air Mobility Operations in a Chemical and Biological Environment*.

**1.2. Policy.** The CRAF program, a unique and significant part of the Department of Defense (DOD) mobility resources since 1952, is a national plan, based on the Defense Production Act of 1950 and Executive Order 12656, to utilize airlift resources of US commercial air carriers to support DOD airlift requirements in a national security situation and defense emergencies when airlift needs exceed the capability of military aircraft. CRAF aircraft and aircrews augment AMC airlift operations in support of US national security objectives. While it is not policy to knowingly send commercial air carriers into high threat areas, civil aircraft participating in the CRAF program may conduct flights into Areas of Responsibility (AORs) that inadvertently have the potential of CBRNE contamination. They will not conduct operations into an airbase that is under attack or contaminated at the time of flight arrival. AMC provides CRAF with a CBRNE familiarization briefing and issues a ground crew chemical ensemble before entry into these areas. Although commercial aircrews are issued ground crew ensembles for personal protection, they are neither trained nor equipped for flight operations in a contaminated environment. Upon warning of impending CBRNE attack, every effort will be made to divert inbound commercial aircraft and launch those on the ground. If a CRAF aircraft or aircrew is caught on the ground during a chemical or biological attack, the crew will be evacuated by first available means and their aircraft grounded. (**NOTE:** See AMCI 10-402, *Civil Reserve Air Fleet*, for detailed information on commercial airlift operations in chemical and biological environment.)

### 1.3. Responsibilities.

1.3.1. Headquarters AMC, Directorate of Operations, DOD Commercial Airlift Division (HQ AMC/A3B), will:

1.3.1.1. Administer, control, and monitor the CRAF program for AMC.

1.3.1.2. Assess the capability of commercial air carriers to provide safe, reliable, and quality airlift services for the DOD. See DOD Directive 4500.53, *Department of Defense (DOD) Commercial Air Transportation Quality and Safety Review Program*.

1.3.1.3. Develop and implement plans and procedures that are intended to provide reasonable assurance of the continuation of essential services during crisis situations using contractor employees or other resources as necessary.

1.3.1.4. Designate Intermediate Staging Base (ISB) locations. See AMCI 10-402, *Civil Reserve Air Fleet*, paragraphs 4.5.2 and 4.5.3.

1.3.1.5. Ensure CBRNE familiarization and equipment is provided to contractors as required by contract agreement (see DODI 3020.37, *Continuation of Essential DOD*

*Contractor Services During Crises*). Issue CRAF aircrews the same ground personal protective gear as is issued to military personnel in theater and provide them CBRNE Defense Familiarization.

1.3.1.6. Coordinate with HQ AMC/A4R to identify total CRAF and contract airlift requirements, as validated by United States Transportation Command (USTRANSCOM), to HQ AMC/A7X in order to program funding requirements.

1.3.1.7. Develop and coordinate with AMC/A7X and HQ AMC/A4RE procedures for issue and turn-in of defensive personal protective gear to CRAF and contract airlift personnel.

1.3.1.8. Obtain approval from AMC Director of Operations (A3), following advice from the Threat Working Group (TWG), to issue Individual Protective Equipment (IPE) to CRAF members.

1.3.2. Headquarters AMC, Director of Installations and Mission Support, Readiness and Emergency Management Division (HQ AMC/A7X) will:

1.3.2.1. Provide manpower to administer just-in-time CBRNE familiarization briefing to CRAF aircrews at designated ISBs.

1.3.2.2. Include HQ AMC/A3B CRAF Chemical, Biological, Radiological, Nuclear, and high-yield explosive (CBRNE)IPE requirements into the CBRNE Passive Defense program element (PE 27593F).

1.3.3. Headquarters AMC, Director of Logistics, Material Readiness Division, Weapons Systems Operations Branch (HQ AMC/A4O) will:

1.3.3.1. If tasked by CRAF Enabling Concept OST Force Module (8ECRF within the 088EF Plan Identification Number (PID) (Extended Force Module PID)) provide supply personnel to issue, receive, and maintain CRAF CBRNE IPE at designated ISBs.

1.3.4. Headquarters AMC, Vehicles, Fuels and Equipment Branch (HQ AMC/A4R) will:

1.3.4.1. Coordinate CRAF CBRNE Individual Protective Equipment (IPE) procurement needs with AMC/A3B when submitting Program Objective Memorandum proposals.

1.3.4.2. Ensure CRAF chemical assets remain populated in Mobility Inventory Control and Accountability System under its own separate pas code.

1.3.4.3. Forward all message traffic regarding IPE to HQ AMC/A3B.

1.3.5. CRAF carriers will:

1.3.5.1. Ensure compliance with the concept of operations and tasks assigned to CRAF individuals in this document.

## Chapter 2

### CONCEPT OF OPERATIONS

#### 2.1. Equipment Issue.

2.1.1. CRAF aircrews IPE bags/ensembles are for emergency use only. These ensembles are stored at Dover AFB, DE and are issued at an ISB prior to entering the AOR. Crews receive just-in-time training in order to quickly and properly don the suit and proceed to a protective shelter. Under no circumstances are civil crews expected to sustain operations in a chemical-biological (CB) environment.

2.1.2. Aircrew members receiving IPE will sign a hand receipt and receive just-in-time training on the tactics, techniques, and procedures (TTP) of CBRNE defense and proper wearing of IPE.

2.1.3. CRAF aircrews will be fitted and issued appropriate (IPE). The standard Basis Of Issue (BOI) for CRAF aircrews is identified in [Table 2.1](#)

**Table 2.1. CRAF IPE BOI.**

Noun	Quantity
Chemical Protective Mask MCU-2A/P or Joint Service General Protective Mask (JSGPM) M-50	1
Filter /Canister	2
Chemical Ensemble (JSLIST)	1
Overboots (sized)	1
Chemical Protective Gloves	2
Glove Inserts	2

2.1.4. Individuals that are assigned IPE may be required to open the mobility bag for security inspections along the route. If bags are opened, ensure they are opened on one end and the opening of the bag does not affect any of the printed information on the bag. These security checks should consist of a nondestructive visual inspection. This inspection does not affect the shelf life or usability of the IPE equipment. If the bag is opened for inspection, it should be resealed immediately or at a minimum, as soon as practical with two-inch wide duct tape. The date of the sealing will be written across the tape with an indelible black or blue marker. If any material damage or destruction to IPE occurs during the inspection, report the damage to the security supervisor on duty at the security checkpoint. Individuals will report any damage to the personnel issuing or collecting IPE bags at the next ISB transited.

#### 2.2. Just-in-Time Training.

2.2.1. Through the CRAF Enabling Concept Operations Support Team (OST) Force Module, Civil Engineer Emergency Management (EM) personnel will be sent to designated ISBs. At these locations, EM personnel will provide just-in-time CBRNE familiarization to CRAF aircrews that are en route to the area of responsibility.

2.2.2. Familiarization will consist of an overview of CBRNE Defense protective equipment and donning procedures. As a minimum, each CRAF aircrew member will attend the required briefing and will demonstrate they can satisfactorily don, clear and seal the protective mask for the AF EM member.

### 2.3. Equipment Return.

2.3.1. As per the CRAF Contract, CRAF aircrews will return IPE bags upon mission completion in accordance with instructions provided.

2.3.2. AMC personnel will inspect all returned IPE bags for serviceability and return hand receipts to the aircrews.

**2.4. Attack Warning Signals.** Air Force Visual Aid 10-2511, *USAF Standard Attack Warning Signals For CBRNE Medium And High Threat Areas*, outlines the Air Force's standardized warning signals. **Figure 2.1** and the following paragraphs provide an explanation of the alarm conditions and required actions.

**Figure 2.1. Air Force Visual Aid 10-2511, USAF Standard Attack Signals For CBRNE Medium And High Threat Areas**

USAF STANDARDIZED ATTACK WARNING SIGNALS FOR CBRNE MEDIUM AND HIGH THREAT AREAS			
ALARM CONDITION	IF YOU	THIS INDICATES	GENERAL ACTIONS
GREEN	HEAR: ALARM GREEN SEE: GREEN FLAG/ TRANSITION SIGN	ATTACK IS NOT PROBABLE	<ul style="list-style-type: none"> <li>• MOPP 0 OR AS DIRECTED <sup>1,4</sup></li> <li>• NORMAL WARTIME CONDITION</li> <li>• RESUME OPERATIONS</li> <li>• CONTINUE RECOVERY ACTIONS</li> </ul>
YELLOW	HEAR: ALARM YELLOW SEE: YELLOW FLAG/ TRANSITION SIGN	ATTACK IS PROBABLE IN LESS THAN 30 MINUTES	<ul style="list-style-type: none"> <li>• MOPP 2 OR AS DIRECTED <sup>1</sup></li> <li>• PROTECT AND COVER ASSETS</li> <li>• GO TO PROTECTIVE SHELTER OR SEEK BEST PROTECTION WITH OVERHEAD COVER <sup>2</sup></li> </ul>
RED	HEAR: ALARM RED SIREN: WAVERING TONE SEE: RED FLAG/ TRANSITION SIGN	ATTACK BY IN-DIRECT FIRE, AIR, OR MISSILE IS IMMINENT OR IN PROGRESS	<ul style="list-style-type: none"> <li>• SEEK IMMEDIATE PROTECTION WITH OVERHEAD COVER <sup>2,4</sup></li> <li>• MOPP 4 OR AS DIRECTED <sup>1</sup></li> <li>• REPORT OBSERVED ATTACKS</li> </ul>
	HEAR: GROUND ATTACK BUGLE: CALL-TO-ARMS SEE: RED FLAG/ TRANSITION SIGN	ATTACK BY GROUND FORCES IS IMMINENT OR IN PROGRESS	<ul style="list-style-type: none"> <li>• TAKE IMMEDIATE COVER <sup>2,4</sup></li> <li>• MOPP 4 OR AS DIRECTED <sup>1</sup></li> <li>• DEFEND SELF AND POSITION</li> <li>• REPORT ACTIVITY</li> </ul>
BLACK	HEAR: ALARM BLACK SIREN: STEADY TONE SEE: BLACK FLAG/ TRANSITION SIGN	ATTACK IS OVER AND CBRN CONTAMINATION AND/OR UXO HAZARDS ARE SUSPECTED OR PRESENT	<ul style="list-style-type: none"> <li>• MOPP 4 OR AS DIRECTED <sup>1,4</sup></li> <li>• PERFORM SELF-AID/BUDDY CARE</li> <li>• REMAIN UNDER OVERHEAD COVER OR WITHIN SHELTER UNTIL DIRECTED OTHERWISE <sup>4</sup></li> </ul>

**NOTES:**

1. WEAR FIELD GEAR AND PERSONAL BODY ARMOR (IF ISSUED) WHEN DIRECTED.
2. COMMANDERS MAY DIRECT MISSION-ESSENTIAL TASKS OR FUNCTIONS TO CONTINUE AT INCREASED RISK.
3. THIS ALARM CONDITION MAY BE APPLIED TO AN ENTIRE INSTALLATION OR ASSIGNED TO ONE OR MORE DEFENSE SECTORS OR CBRN ZONES.
4. SEE AFI 10-2501, AIR FORCE EMERGENCY MANAGEMENT (EM) PROGRAM PLANNING AND OPERATIONS AND AFMAN 10-2503, OPERATIONS IN A CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, AND HIGH-YIELD EXPLOSIVES (CBRNE) ENVIRONMENT, FOR FURTHER GUIDANCE ON WARNING SYSTEMS AND PROTECTIVE ACTIONS.

Prescribed by AFI10-2501  
Supersedes AFVA10-2511, 01 December 2002  
OPR: HQ AFCEA/CXR

AFVA10-2511  
05 August 2011

RELEASABILITY: There are no releasability restrictions on this publication

2.4.1. **ALARM GREEN:** Attack Is **Not** Probable. Alarm Green is the normal condition of readiness in wartime. Although the area could be attacked at any time, there is no active threat of attack at present. Joint Service Lightweight Integrated Suit Technology (JSLIST)

wear is not required; keep it close at hand, or keep within a distance so you can obtain your IPE in 5 minutes, and be prepared for rapid donning. During ALARM GREEN conditions, CRAF aircraft will be cleared to land in the AOR. If CRAF aircrews must remain in a CB threat area overnight and the alarm condition is GREEN, the senior aircrew member must keep the 618th Contingency Response Group advised of the aircrew location at all times. Should the alarm condition change to YELLOW, RED, or BLACK, follow the procedures below.

**2.4.2. ALARM YELLOW:** This condition indicates an attack against the airbase or identified location is expected in the near term. Wear your JSLIST and keep other IPE at hand. Go to and remain in a protective shelter, or depart the area as instructed by the controlling operational commander.

2.4.2.1. If an ALARM YELLOW signal is declared, offload unneeded personnel and request controlling agency clearance for take-off immediately. Proceed to the nearest suitable airfield outside the CB threat area, fuel permitting, or to a destination provided by the carrier operations center or the AMC controlling agency.

2.4.2.2. If in ALARM YELLOW and aircraft launch is not possible, aircrew should attempt to leave the CB threat area via any departing civil or military aircraft. If unable to depart, remain in your protective shelter and wear IPE as instructed by controlling agency until the alarm signal changes to GREEN or transportation arrangements out of the AOR are established.

**2.4.3. ALARM RED:** Two conditions of Alarm Red are used to warn the airbase.

2.4.3.1. One condition warns of an *air or missile attacks*, while the other is used to *provide ground attack warning*. In either case, you should take cover and don your chemical warfare defense equipment. Decon kits may be issued by airfield personnel at this time.







2.4.3.2. **ATTACK BY AIR OR MISSILE:** This condition indicates the airbase, or identified location, is under aircraft or missile attack or an attack will begin within minutes. Warning will usually be issued by a 3-5 minute wavering siren accompanied by giant voice announcement.

2.4.3.3. **Signals for ATTACK BY GROUND FORCE:** Indications the airbase or identified location is under attack by a ground force will vary from location to location. Crew members will receive a briefing when they arrive.

**2.4.4. ALARM BLACK:** This condition indicates an attack is over and initiates base recovery. CRAF aircrew will remain under cover until advised to do otherwise.

## 2.5. Mission-Oriented Protective Posture (MOPP).

Figure 2.2. AFVA 10-2512

MISSION-ORIENTED PROTECTIVE POSTURES (MOPP)					
					
MOPP LEVEL READY	MOPP LEVEL 0	MOPP LEVEL 1	MOPP LEVEL 2	MOPP LEVEL 3	MOPP LEVEL 4
AT THE DISCRETION OF THE INSTALLATION COMMANDER	AVAILABLE FOR IMMEDIATE DORNING	WORN	WORN	WORN	WORN
INDIVIDUAL PROTECTIVE EQUIPMENT (IPE)	INDIVIDUAL PROTECTIVE EQUIPMENT (IPE) AND PERSONAL BODY ARMOR	OVERGARMENT, FIELD GEAR, AND PERSONAL BODY ARMOR	OVERGARMENT, OVERBOOTS, FIELD GEAR, AND PERSONAL BODY ARMOR	OVERGARMENT, PROTECTIVE MASK, OVERBOOTS, FIELD GEAR, AND PERSONAL BODY ARMOR	OVERGARMENT, PROTECTIVE MASK, GLOVES, OVERBOOTS, FIELD GEAR, AND PERSONAL BODY ARMOR
STORED	CARRIED	CARRIED	CARRIED	CARRIED	CARRIED
ALL IPE AND FIELD GEAR	PROTECTIVE MASK WITH C2 CANISTER OR FILTER ELEMENT AND FIELD GEAR WORN AS DIRECTED	OVERBOOTS, PROTECTIVE MASK, AND GLOVES	PROTECTIVE MASK AND GLOVES	GLOVES	N/A
PRIMARY USE	PRIMARY USE	PRIMARY USE	PRIMARY USE	PRIMARY USE	PRIMARY USE
ATTACK PREPARATION DURING PERIODS OF INCREASED ALERT WHEN THE POTENTIAL OF CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) CAPABILITY EXISTS BUT THERE IS NO INDICATION OF CBRN USE IN THE IMMEDIATE FUTURE	ATTACK PREPARATION DURING PERIODS OF INCREASED ALERT WHEN THE ENEMY HAS A CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) CAPABILITY USE MOPP 0 AS THE NORMAL WARTIME IPE LEVEL WHEN THE ENEMY HAS A CBRN CAPABILITY	ATTACK PREPARATION DURING PERIODS OF INCREASED ALERT WHEN A CBRN ATTACK COULD OCCUR WITH LITTLE OR NO WARNING WHEN CBRN CONTAMINATION IS PRESENT OR SUSPECTED AND HIGHER LEVELS OF PROTECTION ARE NOT REQUIRED	ATTACK PREPARATION OR ATTACK RECOVERY DURING PERIODS OF INCREASED ALERT WHEN A CBRN ATTACK COULD OCCUR WITH LITTLE OR NO WARNING AND THE COMMANDER DETERMINES A HIGHER LEVEL OF PROTECTION IS NEEDED DUE TO ATTACK NOTIFICATION TIMELINES, GROUND CONTAMINATION OR ADDITIONAL PROTECTION IS NEEDED WHEN PERSONNEL ARE CROSSING OR OPERATING IN PREVIOUSLY CONTAMINATED AREAS AND RESPIRATORY PROTECTION IS NOT REQUIRED	ATTACK PREPARATION OR ATTACK RECOVERY DURING PERIODS OF INCREASED ALERT WHEN A CBRN ATTACK COULD OCCUR WITH LITTLE OR NO WARNING AND THE COMMANDER DETERMINES A HIGHER LEVEL OF PROTECTION IS NEEDED DUE TO ATTACK NOTIFICATION TIMELINES OR WHEN CONTAMINATION IS PRESENT AND THE HAZARD IS A NEGLIGIBLE CONTACT OR PERCUTANEOUS VAPOR HAZARD	ATTACK RECOVERY WHEN A CBRN ATTACK IS IMMINENT OR IN PROGRESS WHEN CBRN CONTAMINATION IS PRESENT OR SUSPECTED OR THE HIGHEST LEVEL OF PROTECTION IS REQUIRED USE MOPP 4 TO PROVIDE THE MAXIMUM INDIVIDUAL PROTECTION TO PERSONNEL
ADDITIONAL INFORMATION: * INDIVIDUAL PROTECTIVE EQUIPMENT IS DEFINED IN AIR FORCE INSTRUCTION 10-2501, AIR FORCE EMERGENCY MANAGEMENT (EM) PROGRAM PLANNING AND OPERATIONS FOR IPE COMPONENTS AND BASIS OF ISSUE. * DEPENDING UPON THE THREAT AND MISSION, MOPP LEVELS MAY VARY WITHIN DIFFERENT AREAS OF THE AIRBASE OR OPERATING LOCATION. * REFER TO AFMAN 10-2503, OPERATIONS IN A CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND HIGH-YIELD EXPLOSIVE (CBRNE) ENVIRONMENT FOR OPTIONS TO THE MOPP LEVELS AND STANDARD OPERATING PROCEDURES TO OPTIMIZE THE USE OF MOPP LEVELS AND ALARM CONDITIONS. * WEAR FIELD GEAR AND PERSONAL BODY ARMOR WHEN DIRECTED. SPECIALIZED CLOTHING, SUCH AS WET AND COLD WEATHER GEAR, IS WORN OVER THE CHEMICAL PROTECTIVE OVERGARMENT. REFER TO THE APPROPRIATE TECHNICAL ORDERS/MANUALS TO PROPERLY MARK IPE AND THE GPO.					

2.5.1. MOPP levels for ground forces are protection options. These options allow commanders to balance protection requirements and performance degradation with mission requirements. Standard MOPP levels also allow commanders to rapidly communicate their decision to their forces. MOPP levels are always used together with alarm conditions to quickly increase or decrease individual protection against CBRNE threats. AFVA 10-2512 (Figure 2.2) provides a graphic depiction of the type of protective clothing worn during each MOPP condition.

2.5.2. **MOPP READY:** Insuring CBRNE protective equipment is stowed and readily available on plan.

2.5.3. **MOPP 0:** MOPP 0 is the normal wartime MOPP level when the enemy has a NBCC capability.

2.5.3.1. Personnel will inspect issued IPE and prepare it for use.

2.5.3.2. Keep IPE available for immediate donning.

2.5.3.3. Do not remove the operational suit from the vapor bag or install operational C-2A series canisters or the M-61 filter on the protective mask until directed.

2.5.3.4. When directed, remove the suit from the vapor bag and inspect it.

2.5.3.5. Adjust the protective mask. Remove contact lenses (if worn).

2.5.4. **MOPP 1:** MOPP 1 is used when attacks, such as missile attacks, could occur with little or no warning.

2.5.4.1. Wear the JSLIST. Carry the protective mask, footwear covers, gloves, and decon kit.

2.5.4.2. Close all zippers, snaps, and velcro fasteners. Wear field gear and personal body armor (if issued) when outdoors or when directed.

2.5.4.3. Remove contact lenses (if not already done).

2.5.4.4. Implement forced hydration, work-rest cycles, and buddy checks.

2.5.5. **MOPP 2:** MOPP 2 is used when attacks, such as missile attacks, could occur with little or no warning. Individuals assume MOPP 2 when Alarm Yellow is declared, unless otherwise directed. MOPP 2 is utilized to provide additional protection to personnel when crossing or operating in previously contaminated areas.

2.5.5.1. Wear the JSLIST and overboots. Carry the protective mask, gloves, and decon kit (if issued). Close all zippers, snaps, and velcro fasteners.

2.5.5.2. Remove contact lenses (if not already done).

2.5.5.3. Implement forced hydration, work-rest cycles, and buddy checks.

2.5.6. **MOPP 3:** MOPP 3 is a post-attack protective posture that has very limited application. Use it at additional risk when personnel performing essential task require increased dexterity. MOPP 3 is used when a negligible contact or percutaneous (skin absorption) vapor hazard is present.

2.5.6.1. Wear the JSLIST, overboots, and protective mask. Carry the gloves. Close all zippers, snaps, and velcro fasteners. Configure the mask hood according to technical order guidance.

2.5.6.2. Remove contact lenses (if not already done).

2.5.6.3. Enforce hydration standards, work-rest cycles, and buddy checks.

2.5.7. **MOPP 4:** MOPP 4 is used when attacks are imminent or in progress or when contamination is suspected or present. Individuals will assume MOPP 4 when Alarm Red is declared, unless otherwise directed. MOPP 4 is used to provide the maximum protection to personnel.

2.5.7.1. Wear the JSLIST, overboots, protective mask, and gloves. Close all zippers, snaps, and velcro fasteners.

2.5.7.2. Enforce hydration standards, work-rest cycles, and buddy checks.

## Chapter 3

### COMPONENTS OF THE INDIVIDUAL PROTECTIVE EQUIPMENT

**3.1. General.** The IPE for CRAF personnel provides individuals with the minimum personal clothing and equipment needed to protect them from most NBCC hazards. The IPE includes the protective mask, C-2A series canister or M61 series filters, overgarment, gloves, glove inserts, and overboots.

#### 3.2. Protective Mask

3.2.1. The **MCU-2A/P** series protective mask, with a serviceable C-2A canister installed, protects your face, eyes, and respiratory tract from chemical and biological warfare agents and radioactive dust particles. (Figure 3.1) It will also protect against riot control agents such as tear gas. There are three mask sizes Short, Medium, and Long. The mask size is marked on the forehead area of the face piece.

**Figure 3.1. MCU-2A/P Protective Mask.**



##### 3.2.1.1. Warnings:

3.2.1.1.1. This mask is not effective against industrial chemicals such as ammonia, chlorine, and carbon monoxide fumes.

3.2.1.1.2. The mask is not effective in confined spaces when there is not enough oxygen to support life. The mask does not supply or produce oxygen.

3.2.1.1.3. Contact lenses shall not be worn with this mask.

3.2.1.1.4. If you suspect contact with chemical agent, expedient decontamination of the mask must be accomplished as soon as possible.

3.2.1.1.5. Once issued, it is the members responsibility to ensure the mask stays clean and serviceable!!

**Figure 3.2. MCU-2A/P Mask Prepared for Storage.**



3.2.1.2. Storing Mask in Carrier. The head harness is pulled over the face piece as depicted in [Figure 3.1](#) and [Figure 3.2](#). Store upright in the carrier with it facing away from the left side as depicted in [Figure 3.3](#)

**Figure 3.3. MCU-2A/P Mask Stored.**



### 3.2.2. Joint Service General Protective Mask (JSGPM) or M50.

3.2.2.1. The **M50** series protective mask, with a two serviceable M61 filters installed, protects your face, eyes, and respiratory tract from chemical and biological warfare agents and radioactive dust particles. ([Figure 3.4](#)) It will also protect against riot control agents such as tear gas. There are three mask sizes Short, Medium, and Long. The mask size is marked on the forehead area of the face piece.

**Figure 3.4. Joint Service General Protective Mask (JSGPM) or M50.**



**3.2.2.2. Warnings:**

3.2.2.2.1. This mask is not effective against industrial chemicals such as ammonia, chlorine, and carbon monoxide fumes.

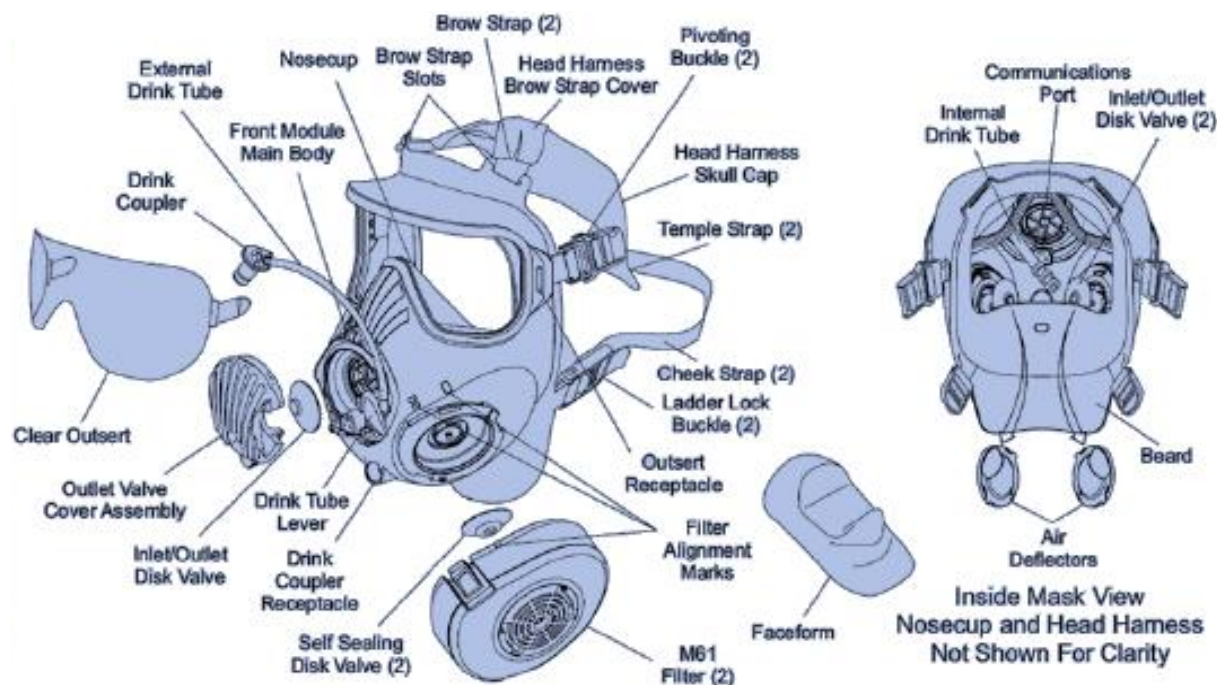
3.2.2.2.2. The mask is not effective in confined spaces when there is not enough oxygen to support life. The mask does not supply or produce oxygen.

3.2.2.2.3. Contact lenses shall not be worn with this mask

3.2.2.2.4. If you suspect contact with chemical agent, expedient decontamination of the mask must be accomplished as soon as possible.

3.2.2.2.5. Once issued, it is the members responsibility to ensure the mask stays clean and serviceable!!

Figure 3.5. JSGPM Break Down.



### 3.2.3. Donning Preparation Procedures.

3.2.3.1. Mask Donning Preparation Procedures. If warn, member will remove hair fasteners (hair clips, pins) and let hair hang freely before donning mask. When wearing chemical protective overgarments, hair will be neatly tucked inside jacket, see [Figure 3.6](#) **Failure to do this could result in an improper mask fit, resulting in illness or death.** Due to the short time it takes for toxic agents to affect you, becoming an expert in donning the mask and getting an airtight seal is imperative. With suspected contamination, every step in donning the mask is important and must be done quickly and accurately. Proper donning procedures are as follows:

Figure 3.6. Mask Donning Preparation Procedures.



**3.2.4. MCU-2A/P Donning Procedures:**

3.2.4.1. STOP BREATHING!

3.2.4.2. Close eyes tightly.

3.2.4.3. Remove headgear.

3.2.4.4. Remove mask from carrier. DO NOT HOLD BY CANISTER.

3.2.4.5. Hold outlet valve assembly in palm of one hand. Use free hand, push hair off forehead. Place mask on face forcing the chin cup very tightly against chin. Pull head harness overhead using the quick-don tab.

3.2.4.6. Grasp a neck strap in each hand and tighten with small jerking motions. The neck straps should be the only straps adjusted. Temple and forehead straps are adjusted when you fit the mask and then left in position.

3.2.4.7. Cover opening at bottom of outlet valve with palm of hand before expelling air that has been held in lungs.

3.2.4.8. Press palm of hand over the canister opening. Inhale to determine whether an airtight seal of mask against face has been obtained. If mask doesn't collapse, check for hair or other material between mask seal and the face. Adjust straps if necessary and recheck.

3.2.4.9. Open eyes and RESUME NORMAL BREATHING.

3.2.4.10. Pull hood over your head so the hood covers your head.

3.2.4.11. Use neck cord fastener to tighten neck cord until hood is held snugly around neck.

3.2.4.12. Replace headgear and close carrier.

**3.2.5. MCU-A2/P Doffing Procedures – Proper doffing procedures are as follows:**

3.2.5.1. Loosen neck cord.

3.2.5.2. Pull back Hood.

3.2.5.3. Loosen ONLY the mask neck straps. Grasp mask by pulling outlet valve assembly and remove by pulling down, outward, and up.

3.2.5.4. Shake or wipe any moisture or frost accumulations from inside of Remove hood and mask.

3.2.5.5. Properly stow mask in carrier.

**3.2.6. JSGPM/M-50 Donning Procedures – Proper donning procedures are as follows:**

3.2.6.1. STOP BREATHING!

3.2.6.2. Close eyes tightly.

3.2.6.3. Remove headgear.

3.2.6.4. Remove mask from carrier. DO NOT HOLD BY FILTER.

3.2.6.5. Hold outlet valve assembly in palm of one hand. Use free hand, push hair off forehead. Place mask on face forcing the chin cup very tightly against chin. Pull head harness overhead using the quick-don tab.

3.2.6.6. Grasp a neck strap in each hand and tighten with small jerking motions. The neck straps should be the only straps adjusted. Temple and forehead straps are adjusted when you fit the mask and then left in position.

3.2.6.7. Cover opening at bottom of outlet valve with palm of hand before expelling air that has been held in lungs.

3.2.6.8. Press palm of each hand over each of the canister openings. Inhale to determine whether an airtight seal of mask against face has been obtained. If mask doesn't collapse, check for hair or other material between mask seal and the face. Adjust straps if necessary and recheck.

**Figure 3.7. Airtight Seal.**



3.2.6.9. Open eyes and RESUME NORMAL BREATHING.

3.2.6.10. Pull hood over your head so the hood covers your head.

3.2.6.11. Use neck cord fastener to tighten neck cord until hood is held snugly around neck.

3.2.6.12. Replace headgear and close carrier.

**3.2.7. JSGPM/M-50 Doffing – Proper doffing procedures are as follows:**

3.2.7.1. Pull back hood.

3.2.7.2. Loosen ONLY the mask neck straps. Grasp mask by pulling outlet valve assembly and remove by pulling down, outward, and up.

3.2.7.3. Shake or wipe any moisture or frost accumulations from inside of mask.

3.2.7.4. Properly stow mask in carrier.

### 3.3. Overgarments.

3.3.1. Overgarments (coat and trousers) are depicted in **Figure 3.8** below.

3.3.2. JSLIST are made of permeable materials and are designed to be worn as the primary chemical and biological protective garment over the duty uniform or as a duty uniform over personal underwear. The JSLIST is made of a carbon bead material with an outer layer. The outer layer is made of similar materials as the battle dress uniform and is designed to repel water and chemical and biological agents. The JSLIST is a two-piece garment (coat and trousers) with an integral hood that is compatible with existing protective masks. The coat and trousers are packaged and issued separately but are worn together as an overgarment.

**Figure 3.8. JSLIST.**



3.3.3. JSLIST Inspection and Donning Procedures: Ref TO 14P3-1-141

3.3.3.1. First inspect and mark the suit: Preparation for a new garment:

3.3.3.2. Remove coat and trousers from factory vacuum-sealed bags.

3.3.3.3. Perform preventive maintenance checks to ensure the garment's fabric is in good condition and that the fasteners are complete and functional.

3.3.3.4. Mark label with date that garment was removed from package. Coats and trousers have labels to record when they were first removed from the factory bags and the number of times they have been washed. JSLIST has a 120-day service life once removed from the factory sealed bag. The wash/wear life for an uncontaminated JSLIST is 6 launderings or 45 days (whichever occurs first). With a permanent marker, mark the "laundry label" after each wash.

3.3.4. The following donning order is provided as a guide:

3.3.4.1. Don the trousers by placing the legs into the trousers and pulling them up. Then close the slide fastener (front zipper) and fasten the two fly opening snaps.

3.3.4.2. Pull the suspenders over the shoulders and fasten the snap couplers (plastic clips). Adjust the suspenders for the proper inseam and leg length.

3.3.4.3. Adjust the waistband hook-and-pile fastener tapes for a snug fit.

3.3.4.4. Don overboots over footwear. Pull the trouser legs over the overboots and secure the two hook-and-pile fastener tapes on each ankle so that they fit snugly around the boot.

3.3.4.5. Don the coat by placing the arms into the sleeves and pulling on the coat. Then close the slide fastener (zipper) and the front closure flap up as far as the chest.

3.3.4.6. Pull the bottom of the coat down over the trousers and adjust the waist for a snug fit using the waist drawcord.

3.3.4.7. Secure the coat-retention loop. Bend over, reach between your legs and grasp the loop on the back of the garment coat. Pull on the loop so that the bottom of the garment coat fits snugly over garment trousers. Bring the loop forward between your legs. Place the loop over the webbing strip at the bottom of the coat.

3.3.4.8. When directed to perform MOPP Levels 1 through 4, pull the coat's waist cord through the front of the coat and tie it in a bow.

3.3.4.9. Fasten the snap on the webbing strip to keep the coat's retention-cord loop in place. Re-tie the coat's retention-cord, if needed. This may result in some discomfort in the crotch area.

### 3.3.5. PULL INTEGRATED HOOD OVER MASK AND SECURE DRAWCORD.

**3.4. Overboots** are made of butyl rubber and vinyl plastic, which are impermeable to liquid, vapor, and dusty agents. The overboots are designed to be worn over combat boots/shoes. To reduce the risk of falls and prevent damage to the overboots, **ladies wearing heels should change to a flat sole shoe**. To prevent contact with chemical contamination around the legs, the upper portion of the **footwear covers must be worn in the legs of the overgarment**.

**3.5. Protective Gloves** are a two-piece hand protection system consisting of rubber gloves for chemical protection and separate inner cotton liners for perspiration absorption. Liners can be worn on either hand; gloves are form fitted for either the left or right hand. The butyl rubber and vinyl plastic gloves are impermeable to liquid, vapor, and dusty agents. To prevent contact with chemical contamination around the wrists, the gauntlet portion of the **protective gloves must be worn in the sleeves of the overgarment**.

### 3.6. Personal Decontamination Kit - M-291.

3.6.1. The purpose of the M-291 kit is to allow an individual to perform immediate decontamination of their skin. The kit allows the physical removal and absorption of toxic liquid chemical agent, with no long-term effects.

3.6.2. When you find or suspect a liquid chemical agent on your skin, or a buddy sees it and tells you, act immediately. The complete decontamination of the face and other areas of exposed skin must be done as quickly as possible--3 minutes or less.

3.6.3. The M-291 Kit is for external use only. It may be slightly irritating to skin or eyes. Keep decontaminating powder out of eyes, cuts, and wounds. Use water to wash toxic liquid chemical agent out of eyes, cuts, or wounds.

3.6.4. M-291 kit is used as follows:

3.6.4.1. Remove one Skin Decon Kit from carrying pouch.

3.6.4.2. Tear open quickly at notch. **NOTE:** Although any notch may be used to open packet, opening at TEAR LINE will place applicator pad in a position that is easier to use.

3.6.4.3. Remove applicator from packet and discard empty packet.

3.6.4.4. Unfold applicator pad and slip finger(s) into handle. **Figure 3.9**

3.6.4.5. Thoroughly scrub, using a zigzag motion, all exposed skin. **NOTE:** For heavily contaminated areas where contamination about the size of a penny is visible, place pad with the center line directly over contaminated area. Using a pinching motion, remove liquid gross contamination from skin surface. Properly dispose of contaminated pad (preferably in a hazardous waste container) and use a second pad for the removal of any residual liquid contamination.

3.6.4.6. Distribution of the M-291 Skin Decon Kit will be managed at the destination airfield by Military personnel. Provisions to document this requirement will be included in contingency-specific OPLANS or other similar documents.

**Figure 3.9. Personal Decontamination Kit - M-291.**



3.6.4.7. M291 Decontaminating skin kit: Ref T.O. 11D1-1-131

### **3.7. Nerve Agent Antidotes.**

3.7.1. MK1 Nerve Agent Antidote Kit (NSN: 6505-01-174-9919). The MK1 kit consists of one atropine-filled (2 mg) and one 2-PAM Cl-filled (600 mg) autoinjector in a single plastic clip. Atropine is an anticholinergic preparation that mitigates many of the effects of nerve agent poisoning. 2-PAM Cl facilitates the reactivation of nerve agent-inactivated

acetylcholine. It, like atropine, is supplied in single dose autoinjectors for use after recognition of the symptoms of nerve agent exposure.

3.7.2. Distribution of the MK1 Nerve Agent Antidote will be managed at the destination airfield by Military personnel. Provisions to document, this requirement will be included in contingency-specific OPLANS or other similar documents.

3.7.3. Figure 3.10. provides detailed instructions on the proper use of the MK1 kit.

Figure 3.10. MK1 Nerve Agent Antidote Kit.

## Nerve Agent Antidote Injectors

Ref AFH 36-2218

### Use Auto-Injectors for Nerve Agents ONLY!

- Wear protective mask
- Remove one atropine injector (small injector) from a Mark 1 Kit and remove safety cap
- Position injector against injection site, apply firm even pressure until needle is triggered
- Hold injector firmly in place for 10 seconds
- Carefully remove injector and bend needle, attach to an OG pocket
- Remove the 2 PAM Chloride injector (large injector), remove safety cap, and repeat the steps above



**WARNING: If within 5-10 minutes after administration of the first set of injectors, your heart beats very quickly and your mouth becomes very dry, do not inject a second Mark 1 kit.**

- If mild symptoms persist after 10 to 15 minutes, have a buddy administer a second Mark 1 kit
- Seek medical help



Remove cap



Inject antidote



Pin to pocket



## Chapter 4

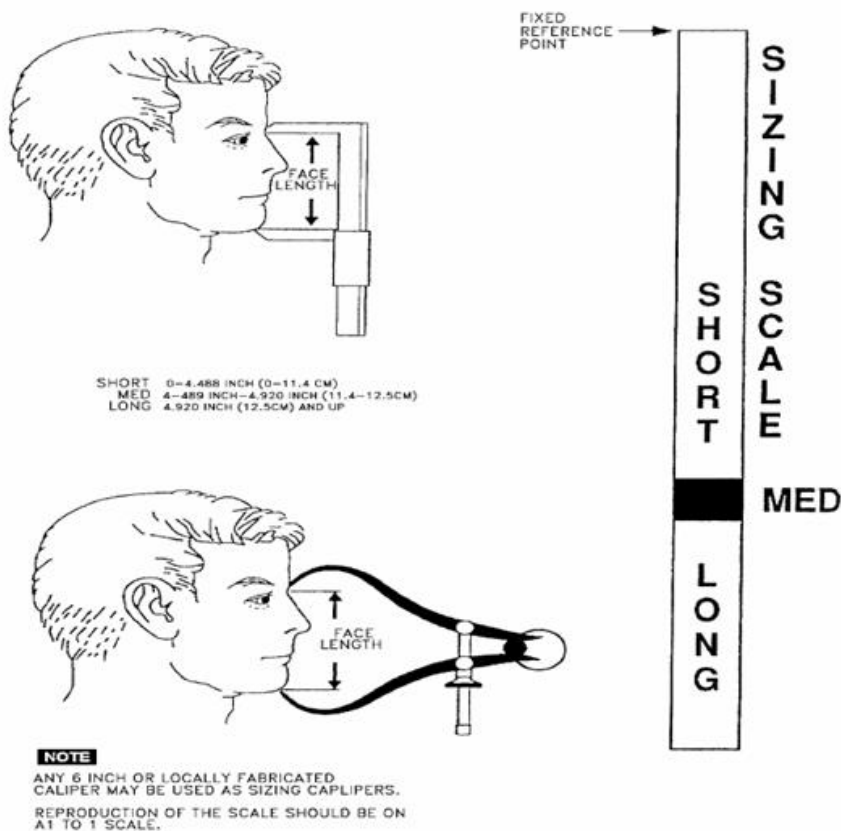
### EQUIPMENT SIZING

**4.1. General.** To afford an individual with the ultimate amount of personal protection the majority of all IPE is sized.

**4.2. Protective Mask MCU 2A/P and JSGPM/M-50.** There are three mask sizes: Short, Medium, and Long. An improper mask fit could result in illness or death. Initial mask size selection is determined by a face length measurement. The use of any 6-inch calipers is required to measure the user's face length and determine the proper mask size. [Figure 4.1](#) provides an overview of the mask measurement process and sizing.

**Figure 4.1. MCU 2A/P and JSGPM/M-50 Mask Sizing.**

T.O. 14P4-15-1



L6003740

### 4.3. JSLIST.

4.3.1. Coat: Measure individual's height and chest circumference; find corresponding height and chest circumference on the vertical and horizontal axes of [Table 4.1](#); the highlighted section where the horizontal and vertical lines intersect is the size of coat the user should wear.

4.3.2. Trousers: Measure individual's inseam length and waist circumference; find corresponding inseam length and waist circumference on the vertical and horizontal axes of [Table 4.2](#); the highlighted section where the horizontal and vertical lines intersect is the size trousers the user should wear.

**Table 4.1. JSLIST Coat Sizing.**

78																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

CHEST CIRCUMFERENCE (INCHES)

SIZE

SIXS - SMALL EXTRA SMALL  
 S/S - SMALL SHORT  
 M/S - MEDIUM SHORT  
 M/R - MEDIUM REGULAR  
 M/L - MEDIUM LARGE  
 L/R - LARGE REGULAR  
 L/L - LARGE LONG  
 XL/L - X LARGE LONG  
 XXL/L - XX LARGE LONG  
 XXXL/L - XXX LARGE LONG

TABLE 2\_2

Table 4.2. JSLIST Trouser Sizing.

INSEAM (INCHES)		WAIST CIRCUMFERENCE (INCHES)		SIZE		TABLE 2_3	
38		25	26	S/XS			
37		27	28	S/S			
36		29	30	M/S			
35		31	32	M/L			
34		33	34	L/L			
33		35	36	X/L			
32		37	38	XXL			
		39	40	XXXL			
		41	42				
		43	44				
		45	46				
		47	48				
		49	50				
		51	52				
		53	54				
		55	56				
		57	58				
		59	60				
		61	62				

**4.4. Overboots.** Fit the overboots by locating the individual boot size in [Table 4.3](#). At the top of each grouping of combat boots is the MULO's size that should provide a proper fit. In some cases, a size large or smaller MULO may provide a better fit.

**Table 4.3. Overboot Sizing.****COMBAT BOOT and MULO SIZING CHART**

For Standard, Desert, and Jungle Combat Boots

This chart reflects each of the standard leather combat boot sizes (Sizes 3-14) with its corresponding MULO

		<b>MULO 3</b>		<b>MULO 4</b>		<b>MULO 5</b>	
		3 W	3 XW	3.5XW	4XW	4.5XW	5XW
		3.5R	3.5W	4W	4.5W	5W	6.5W
		3R	4N	4R	4.5R	5R	5.5R
		3.5N		4.5N	5N	5.5N	6N
3.5XN	4XN	4.5XN	5XN	5.5XN	6XN		
		<b>MULO 6</b>		<b>MULO 7</b>		<b>MULO 8</b>	
		5.5XW	6XW	6.5XW	7XW	7.5XW	8XW
		6W	6.5W	7W	7.5W	8W	8.5W
		6R	7N	7R	7.5R	8R	8.5R
		6.5N		7.5N	8N	8.5N	9N
6.5XN	7XN	7.5XN	8XN	8.5XN	9XN		
		<b>MULO 9</b>		<b>MULO 10</b>		<b>MULO 11</b>	
		8.5XW	9XW	9.5XW	10XW	10.5XW	11XW
		9W	9.5W	10W	10.5W	11W	11.5W
		9R	10N	10R	10.5R	11R	11.5R
		9.5N		10.5N	11N	11.5N	12N
9.5XN	10XN	10.5XN	11XN	11.5XN	12XN		
		<b>MULO 12</b>		<b>MULO 13</b>		<b>MULO 14</b>	
		11.5XW	12XW	12.5XW	13XW	13.5XW	14XW
		12W	12.5W	13W	13.5W	14W	
		12R	12.5R	13R	13.5R	14R	
		12.5N	13N	13.5N	14N		
12.5X	13XN	13.5XN	14XN				

TABLE2-4

**4.5. Protective Gloves.** Butyl rubber gloves are available in sizes Small, Medium, Large, and X-Large. The individual should try on and select the closest fitting comfortable size.

SCOTT P. GOODWIN, Brig Gen, USAF  
Director of Operations

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DOD Directive 4500.53, *Department of Defense (DOD) Commercial Air Transportation Quality and Safety Review Program*, 2 December 2010

DOD Instruction 3020.37, *Continuation of Essential DOD Contractor Services During Crises*, 6 November 1990

AF Doctrine Document (AFDD) 2-1.8, *Counter-Nuclear, Biological, and Chemical Operations*, 26 January 2007

AFDD 2-4, *Combat Support*, 23 March 2005

AFDD 2-4.1, *Force Protection*, 9 November 2004

AFPD 10-25, *Emergency Management*, 26 September 2007

AFPD 10-26, *Counter-Chemical, Biological, Radiological and Nuclear Operations*, 26 September 2007

AFVA 10-2511, *USAF Standardized Attack Warning Signals For CBRNE Medium And High Threat Areas*, 05 Aug 2011

AFVA 10-2512, *Mission-Oriented Protective Postures (MOPP)*, 15 Aug 2011

AFI 10-2501, *Air Force Emergency Management (EM) Program And Operations*, 24 January 2007

AFMAN 10-2503, *Operations In A Chemical, Biological, Radiological, Nuclear, And High-Yield Explosive (CBRNE) Environment*, 7 July 2011

AMCI 10-402, *Civil Reserve Air Fleet*, 17 November 2011

T.O. 11D1-1-131, *Operation and Maintenance Instruction, Decontaminating Kit, Skin, M291*, 1 November 1991

T.O. 14P3-1-141, *Operation and Maintenance Instruction, Chemical Protective Ensemble*, 15 September 2006

T.O. 14P4-15-1, *Operation and Maintenance Instructions with Illustrated Parts Breakdown Chemical-Biological Mask Type MCU-2A/P*, 27 September 2010

***Prescribed Forms***

None

***Adopted Forms***

None

***Abbreviations and Acronyms***

**AMC**—Air Mobility Command

**AOR**—Area of Responsibility

**BOI**—Basis Of Issue

**CBRNE**—Chemical, Biological, Radiological, Nuclear, and High Yields Explosive

**CB**—Chemical Biological

**CONOPS**—Concept of Operations

**CONUS**—Continental United States

**CRAF**—Civil Reserve Air Fleet

**DOD**—Department of Defense

**EM**—Emergency Management

**FSTR**—Full Spectrum Threat Response

**IPE**—Individual Protective Equipment

**ISB**—Intermediate Staging Base

**JSGPM**—Joint Service General Protective Mask

**JSLIST**—Joint Service Lightweight Integrated Suit Technology

**JP**—Joint Publication

**MOPP**—Mission-Oriented Protective Posture

**NBCC**—Nuclear, Biological, Chemical, and Conventional

**OST**—Operations Support Team

**PID**—Plan Identification Number

**TTP**—Tactics, Techniques, and Procedures

**TWG**—Threat Working Group

**USTRANSCOM**—United States Transportation Command

### *Terms*

**Biological Agent**—A microorganism that causes disease in personnel, plants, or animals, or causes the deterioration of materiel. (JP 1-02)

**Chemical Agent**—Any toxic chemical intended for use in military operations. (JP 3-11, this term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**Groundcrew Chemical Ensemble (GCE)**—A whole body protective system that includes a protective mask (MCU-2 series, M45, or M17A2), a second skin (only applies if issued the MCU-2 series or M45), C2 series canister or filter set, overgarment, protective gloves with cotton inserts, and footwear covers or overboots.

**Immediate Decontamination**—Decontamination carried out by individuals immediately upon becoming contaminated. It is performed in an effort to minimize casualties, save lives, and limit the spread of contamination. Also called emergency decontamination. (JP 1-02)

**Individual Protective Equipment (IPE)**—1. In nuclear, biological, and chemical warfare, the personal clothing and equipment required to protect an individual from biological and chemical hazards and some nuclear effects. (JP 1-02) 2. For Air Force units, this includes the groundcrew chemical ensemble or specialized equipment, such as the J-FIRE and field gear. (AFI 10-2501)

**Mission Oriented Protective Posture (MOPP)**—A flexible system of protection against nuclear, biological, and chemical contamination. This posture requires personnel to wear only that protective clothing and equipment (mission-oriented protective posture gear) appropriate to the threat level, work rate imposed by the mission, temperature, and humidity. Also called MOPP. (JP 1-02)

**Nuclear, Biological, and Chemical Environment**—Environments in which there is deliberate or accidental employment, or threat of employment, of nuclear, biological, or chemical weapons; deliberate or accidental attacks or contamination with toxic industrial materials, including toxic industrial chemicals; or deliberate or accidental attacks or contamination with radiological (radioactive) materials. (JP 1-02)

**Tactics, Techniques, and Procedures (TTP)** —Applies basic and operational doctrine to military actions by describing the proper use of specific weapons systems or detailed tactics, techniques, and procedures to accomplish specific military operations. (AFI 33-360)